

Title: SINGLE WAFER SURFACE PROCESSING SYSTEM FOR SEMICONDUCTOR  
SUBSTRATE

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Abstract:

**PURPOSE:** To improve a stability of a processing characteristic, enabling the processing of a wider range through the combination of the conditions of vapor-phase processings by processing a semiconductor substrate purged in the atmosphere, which includes one or plural kinds of gases selected from the group comprising nitrogen, oxygen and argon and is so controlled as to include steam of a fixed concentration, in the atmosphere of the vapor-phase including a hydrofluoric acid gas.

**CONSTITUTION:** A semiconductor substrate 1 purged in the atmosphere, which includes one or plural kinds of gases selected from the group comprising nitrogen, oxygen and argon and is so controlled as to include steam of a fixed concentration, is processed in the atmosphere of the vapor-phase including at least a hydrofluoric acid gas.; Further, the quantity of moisture absorbed by the semiconductor substrate 1 to be processed is so controlled as to be kept constant, even if the time required from providing the first semiconductor substrate 1 to be processed in a loading chamber 10 to subjecting it to a vapor-phase processing is different from the time required with respect to the final one. Thereby, the controllability of etching is improved, and the processings having different etching rates can be performed accurately and with a good reproducibility by combining the sequential vapor-phase processings with each other suitably.

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